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10/534,889

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Reinhart Von Nordenskjold

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EXAMINER

HOBBS, MICHAEL L

ART UNIT

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1797

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/534,889	<b>Applicant(s)</b> VON NORDENSKJOLD, REINHART	
	<b>Examiner</b> MICHAEL HOBBS	<b>Art Unit</b> 1797	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 18 September 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 14-19 and 27-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 14-19 and 27-37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. Applicant's amendment filed on 09/18/2008 has been considered and entered for the record. Applicant's amendment overcomes the claim objection in paragraph 2 of the Office Action mailed on 04/18/2008 and Applicant's amendment overcomes the 35 USC 112 second paragraph rejection in paragraph 5 of the Office Action mailed on 04/18/2008. Claims 14-19 and newly added claims 27-37 are pending further action upon the merits.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 14 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Fisher et al. (U.S. 2,064,529).

4. Fisher teaches a sewage sludge multi-digestion unit that utilizes an anaerobic process to treat the incoming waste. For claim 14, Fisher teaches that a batch of fresh sludge is supplied to a primary digester or pre-acidifier (col. 1 lines 23-25).

Furthermore, the primary digester is fully capable of functioning as a pre-acidifying chamber. When a new batch of fresh sludge is supplied to the primary digester (col. 1 lines 38-41), the displaced sludge is sent in an outflow stream to a secondary digester or fermenter where the desired digestion can be completed (page 1 col. 1 lines 46-48).

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The sludge from the primary digester is transported by a two-path or split delivery system such as gravity fed conduits (col. 3 lines 13-15) that allows for the automatic passage or transport means of sludge from the primary digester to the secondary digester (col. 2 lines 46-48).

5. For claim 15, Fisher teaches that the supernatant or top liquor is passed under controlled conditions from the first digester to the second digester (col. 3 lines 4-7) where the upper conduit or pathway allows the sludge to flow due to gravity (col. 3 lines 11-13) from the outflow stream due to being displaced by a new batch of fresh sludge.

6. Therefore, Fisher meets the limitations of claims 14 and 15.

7. Claims 14, 15, 20, 27 and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Reynell (U.S. 5,958,756).

8. With regards to claim 14, Reynell teaches a fluids digestion vessel (where the digestion vessel is being interpreted as a pre-acidifying chamber and is fully capable of function as a pre-acidifying chamber) (Fig. 1) where the fluid from the fluid digester contains nutrients which are transferred to the solid digestion vessel or fermenter (col. 1 lines 12-14 & 59-60). The fluid from the fluid digester is transferred to the solid digester by a pump (col. 3 lines 59-61) or transport means which feeds a fraction of the fluid to the solids digester (col. 1 lines 47-49) which reads on transport means are formed to selectively transport sufficiently pre-acidified materials.

9. Regarding claims 15 and 27, Reynell teaches a conduit or spillway so that the flow of liquid can occur by gravity (col. 3 lines 59-60) which is in the upper portion of the

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tank (Fig. 1). With regards to claim 20, Reynell teaches a sieve (Fig. 1) that removes large particles from the fluid waste (col. 4 lines 40-41) where the sieve is being interpreted as a mechanical pre-treatment to the fluid waste. For claim 28, the inlet of the conduit of Ryenell is being interpreted as a nozzle for withdrawing the pre-acidified material.

10. Therefore Reynell meets the limitations of claims 14, 15, 27 and 28.

11. Claims 14 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by von Nordenskjöld (DE 19804007).

12. For claim 14, von Nordenskjöld teaches an anaerobic treatment of waste water that includes a basin that has an acidifying range/chamber or pre-acidifier that transfers the waste water to a high load range or fermenter where the anaerobic dismantling/processing of the organic contents occurs (page2 lines 28-30, page 3 lines 20-21 of translation, Fig. 1 elements 3 and 7). The acidifying chamber (chamber 3) of Nordenskjöld is being interpreted as the pre-acidifying chamber of the instant application and the acidifying chamber is fully capable of functioning as a pre-acidifying chamber. The transfer of the waste water between the acidifying chamber and the high load or fermenter occurs via a dosing pump that draws the fluid from the bottom of the chamber (page 3 lines 12-14 of translation, Fig. 1 element 18) where the dosing pump is fully capable of selectively transporting the waste water. For claim 18, von Nordenskjöld teaches aerating the effluent with air or oxygen which reads on a floatation device (page 3 lines 10-11 of translation). Also, von Nordenskjöld teaches

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that a dosage pump pulls fluid from the bottom of the acidifying range (page 3 lines 11-12) or the lower portion of the pre-acidifier.

13. Therefore, von Nordenskjöld meets the limitations of claims 14 and 18.

### ***Claim Rejections - 35 USC § 103***

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

16. Claims 16, 19 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over von Nordenskjöld (DE 19804007) in view of Mann (U.S. 2003/0213702).

17. For claim 16, von Nordenskjöld teaches that the effluent in the acidifying range is mixed with an agitator that is driven by a motor (page 3 lines 4-5 of translation, Fig. 1 element 4). While von Nordenskjöld does not specify that the mixer is a stirrer, but based on the figure of the reference, it is implied that the mixer is a mechanical agitator like a stirrer.

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18. Mann discloses a waste disposal apparatus for receiving marine waste from a macerating marine toilet where the waste is sent to a disposal tank consisting of two chambers. For claim 16, the first chamber or electrolysis chamber holds the waste initially until the electrolysis chamber is flushed under the direction of an operator or a controller. With regards to claim 16, Mann teaches an electronic controller that operates the waste treatment apparatus (page 4 [006] lines 1-3, Fig. 3 element 55). The controller of Mann monitors the level in the tank at a selected level in order to warn the operator that the tank is full (page 4 [0068] lines 2-4) or to discharge flocculation polymers to settle the solid portion of the waste out of solution (page 4 [0067] lines 10-12). Furthermore, for claim 29, the controller of Mann would be fully capable of controlling the agitation of von Nordenskjöld. It would be obvious to one of ordinary skill in the art to employ the controller as suggested by Mann within the teachings of von Nordenskjöld in order to control the level of waste within the tank. The suggestion for doing so at the time would have been in order to prevent surplus waste from accumulating in the chamber (page 5 [0068] lines 7-8).

19. For claim 19, von Nordenskjöld does not teach a controller that operates the floatation device and the withdrawal device.

20. With regards to claim 19, Mann teaches an electronic controller that operates the waste treatment apparatus (page 4 [006] lines 1-3, Fig. 3 element 55). The controller of Mann monitors the level in the tank at a selected level in order to warn the operator that the tank is full (page 4 [0068] lines 2-4) or to discharge flocculation polymers to settle the solid portion of the waste out of solution (page 4 [0067] lines 10-12). It would be

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obvious to one of ordinary skill in the art to employ the controller as suggested by Mann within the teachings of von Nordenskjöld in order to control the level of waste within the tank. The suggestion for doing so at the time would have been in order to prevent surplus waste from accumulating in the chamber (page 5 [0068] lines 7-8).

21. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Reynell (U.S. 5,958,756) in view of Copa et al. (U.S. 4,919,815).

22. Reynell is silent regarding the limitations of claims 17.

23. Copa discloses a two-stage anaerobic/aerobic treatment for wastewater that removes the majority of the chemical oxygen demand (COD) from the wastewater. The tank includes a first anaerobic treatment zone followed by a second aerobic treatment zone. For claim 17, Copa teaches that the liquid in the anaerobic zone flows upward through a filter bed or sieve (col. 4 lines 49-51, Fig. 2 element 20) that retains some of the solids as the fluid flows to the aerobic zone. The transportation means of moving the fluid from the first tank to the second is due to an upward flow of air and liquid that is used to re-suspend the solids within the tank and promotes the flow of the waste fluid to the aerobic tank (col. 2 lines 34-36). The filter bed also serves to retain the majority of solids within the first reactor which allows further treatment of the solids within the anaerobic vessel. It would have been obvious to one of ordinary skill in the art to employ the filter bed as suggested by Fisher within the teachings of Reynell in order to retain the solids within the fluid digester. The suggestion for doing so at the time would



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have been in order to minimize the amount of residual solids wasted during the treatment process (col. 2 lines 34-36).

24. Claims 31, 34 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over von Nordenskjöld (DE 19804007) in view of Ahn et al. (*Water Research*. Vol. 35, no. 18, pp4267-4276, 2001).

25. With regards to claim 31, von Nordenskjöld teaches using an anaerobic treatment of waste water that includes a basin that has an acidifying range/chamber or pre-acidifier that transfers the waste water to a high load range or fermenter where the anaerobic dismantling/processing of the organic contents occurs (page2 lines 28-30, page 3 lines20-21 of translation, Fig. 1 elements 3 and 7). The waste water is pumped between the acidifying chamber and the high load or fermenter occurs via a dosing pump that draws the fluid from the bottom of the chamber (page 3 lines 12-14 of translation, Fig. 1 element 18). However, von Nordenskjöld discloses an acidifying tank, but is silent regarding a pre-acidifier.

26. Ahn discloses a pre-acidification process of treating brewery wastewater that includes a pre-acidification reactor. For claim 31 includes the step of using a pre-acidification reactor (page 4268, introduction, paragraph 9) prior to sending the waste stream to a second reactor or tank (Fig. 1). The pre-acidification step leads to maximizing the hydrogen utilization of the microorganisms within the reactor and continuous granule formation (page 4268, introduction, paragraph 7). Therefore, it would be obvious to one of ordinary skill in the art to employ the pre-acidification step as

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suggested by Ahn within the wastewater treating method of von Nordenskjöld. The suggestion for doing so at the time would have been in order to increase the organic loading rate and removal efficiency of the reactor (page 4267 introduction paragraph 2).

27. For claim 34, von Nordenskjöld teaches aerating the effluent with air or oxygen which reads on a floatation that is used to mix the fluid in the acidifying range/chamber (page 3 lines 10-11 of translation). Also, von Nordenskjöld teaches using the dosage pump to pull fluid from the bottom of the acidifying range (page 3 lines 11-12). Finally, for claim 35, von Nordenskjöld discloses the step where the materials entering the acidifying tank comprise a sludge or solid and a liquid (page 1 paragraph 4 lines 4-5).

28. Claims 32 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over von Nordenskjöld (DE 19804007) in view of Ahn et al. (*Water Research*. Vol. 35, no. 18, pp4267-4276, 2001) and in further view of Copa et al. (US 4,919,815).

29. For claim 32, von Nordenskjöld using an anaerobic treatment of waste water that includes a basin that has an acidifying range/chamber or pre-acidifier that transfers the waste water to a high load range or fermenter where the anaerobic dismantling/processing of the organic contents occurs (page2 lines 28-30, page 3 lines20-21 of translation, Fig. 1 elements 3 and 7). The waste water is pumped between the acidifying chamber and the high load or fermenter occurs via a dosing pump that draws the fluid from the bottom of the chamber (page 3 lines 12-14 of translation, Fig. 1 element 18). Both von Nordenskjöld and Ahn are silent about letting

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the materials settle and withdrawing the material from an upper portion of the tank through a seive.

30. For claims 32 and 33, Copa the step where liquid in the anaerobic zone flows upward through a filter bed or sieve (col. 4 lines 49-51, Fig. 2 element 20) that retains some of the solids as the fluid flows to the aerobic zone. The transportation means of moving the fluid from the first tank to the second is due to an upward flow of air and liquid that is used to re-suspend the solids within the tank and promotes the flow of the waste fluid to the aerobic tank (col. 2 lines 34-36). The filter bed also serves to retain the majority of solids within the first reactor which allows further treatment of the solids within the anaerobic vessel. The solids are settled and then this is followed by another aeration step within the first aerobic treatment zone (col. 3 lines 48-51). It would have been obvious to one of ordinary skill in the art to employ the steps of filtering and settling as suggested by Copa within the teachings of von Nordenskjöld and Ahn in order to retain the solids within the fluid digester. The suggestion for doing so at the time would have been in order to minimize the amount of residual solids wasted during the treatment process (col. 2 lines 34-36).

31. Claims 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over von Nordenskjöld (DE 19804007) in view of Wilkie (US 2005/0167359 A1) (continuation in part of application 10/277,486 filed on October 22, 2002).

32. Regarding a mechanical comminution device, von Nordenskjöld is silent about a mechanical pre-treatment of the raw materials.

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33. Wilkie discloses a fixed-film anaerobic digestion of flushed waste where the slurry is pre-treated by mechanical means. For claims 30, Wilkie discloses pre-treating the raw materials by mechanical comminution ([0055]). Therefore, it would be obvious to one of ordinary skill in the art to employ the pre-treatment as suggested by Wilkie in order to process the raw waste of von Nordenskjöld. The suggestion for doing so at the time would have been in order to render small or reduce the size of the suspended solids ([0055]).

34. Claims 36 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over von Nordenskjöld (DE 19804007) in view of Ahn et al. (*Water Research*, Vol. 35, no. 18, pp4267-4276, 2001) and in further view of Wilkie (US 2005/0167359 A1) (continuation in part of application 10/277,486 filed on October 22, 2002).

35. Regarding a mechanical comminution step for processing the incoming raw material, von Nordenskjöld and Ahn are silent.

36. Wilkie discloses a fixed-film anaerobic digestion of flushed waste where the slurry is pre-treated by mechanical means. For claims 36 and 37, Wilkie discloses the step of pre-treating the raw materials by mechanical comminution ([0055]). Therefore, it would be obvious to one of ordinary skill in the art to employ the pre-treatment step as suggested by Wilkie in order to process the raw waste of von Nordenskjöld and Ahn. The suggestion for doing so at the time would have been in order to render small or reduce the size of the suspended solids ([0055]).

***Response to Arguments***

37. Applicant's arguments filed 09/18/2008 have been fully considered but they are not persuasive. On page 6 paragraph 4, Applicant argues that Fisher does not disclose a pre-acidifier and on top of page 7 that both the solids and supernatant liquid are passed from the primary digester to the secondary digester. The Examiner respectfully disagrees with this assertion. First, the primary digester tank functions as a pre-processing tank for the secondary digester where the fermentation of the waste occurs and this primary tank is fully capable of functioning as a pre-acidifier. Second, the liquid and solids can be selectively sent to the secondary tank through the use of a flow controlling means such as valves which can be used to regulate the gravity feed from either or both of the conduits (col. 3 lines 26-33).

38. Regarding Applicant's argument on page 7 paragraph 1 that Reynell does not disclose transporting pre-acidified material to the solids digestion and that the same composition is sent back from the solids digester to the digestion vessel. Reynell discloses sending waste fluid to a fluid digester where the fluid is passed through a sieve to remove particles from the fluid. The digestion of the fluid takes place with a bacteria inoculum used to initiate the digestion of the fluid. Furthermore, the fluid digester is fully capable of performing a pre-acidification process and the fluid is transferred by a fluid discharge line from the top of the fluid discharge tank as shown in Figure 1.

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39. With regards to Applicant's argument that the pump 18 of von Nordenskjöld does not draw pre-acidified material from the basin, the Examiner respectfully disagrees with this characterization of von Nordenskjöld. The basin 3 of von Nordenskjöld is an acidification basin and is fully capable of performing a pre-acidification reaction of the waste material and the pump 18 is fully capable of selectively sending material to the second chamber.

40. For Applicant's argument on page 7 paragraph 4, the controller of Mann is fully capable of controlling the waste treatment device. Also, regarding that the filter bed of Copa, Applicant argues that Copa fails to distinguish between pre-acidified material and that the filter bed only minimizes the amount of material lost in the process. However, a filter bed selectively removes particles from a waste stream which is the same functionality as a sieve.

### ***Conclusion***

41. Claims 14-19 and 27-37 are rejected.

42. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL HOBBS whose telephone number is (571)270-3724. The examiner can normally be reached on Monday-Thursday 7:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on (571) 272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/William H. Beisner/

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Primary Examiner, Art Unit 1797

/M.L.H./

MICHAEL HOBBS

Examiner, Art Unit 1797